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None

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(54) Container

(57) A container (P) especially for a circuit card is made from a blank of foldable sheet material. Side wall panels (12) of the container carry flap members (14) operating as support members, and a cover comprises panels (24, 26) which can be folded such that they overlap and rest on the support members. The outer cover panel (26) carries locking tabs (28) which are inserted into slots (15) in the flap members (14) and operate as retaining members, keeping the circuit card firmly in place in the container.

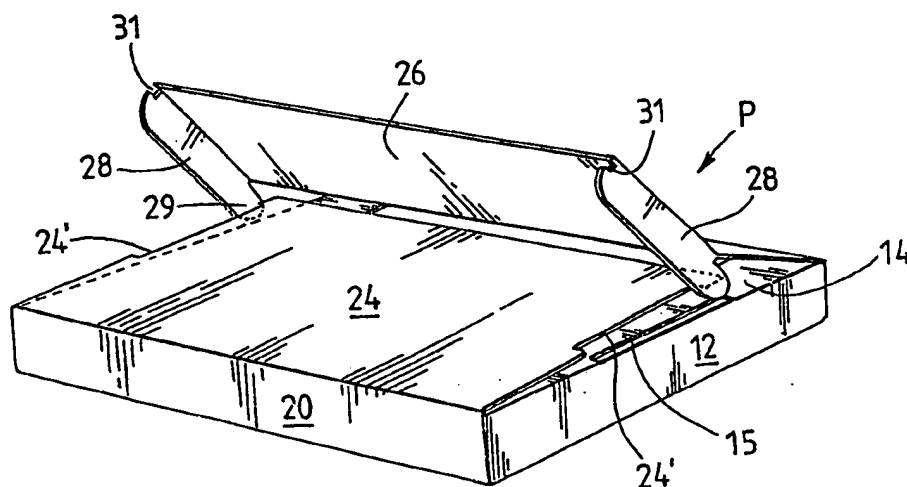


FIG. 2

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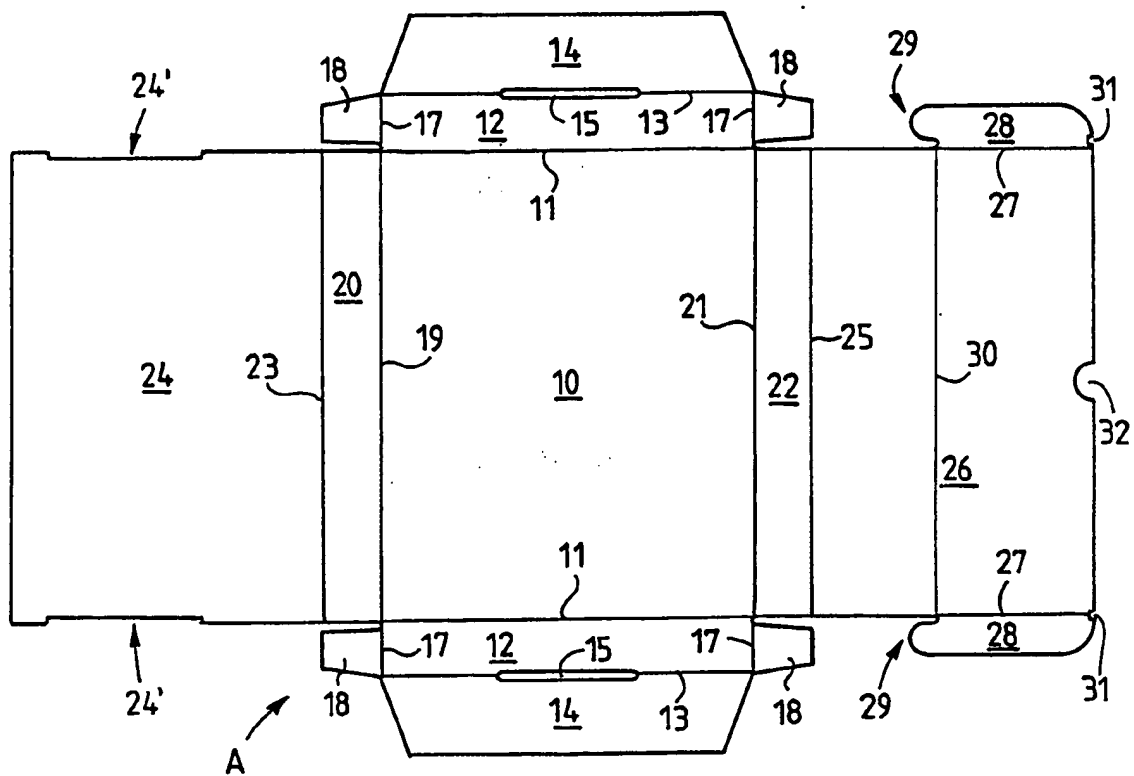


FIG. 1

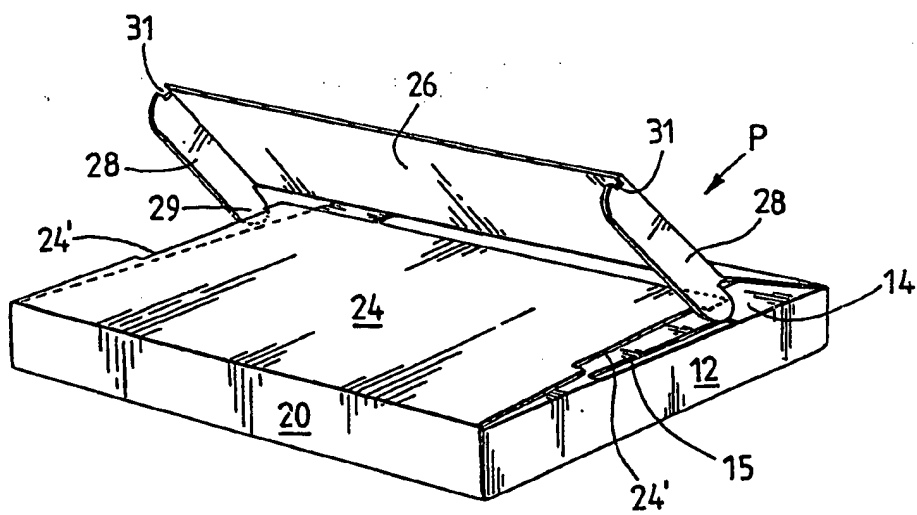


FIG. 2

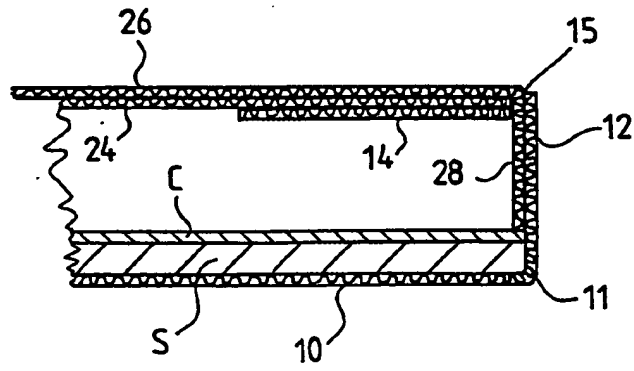


FIG. 3

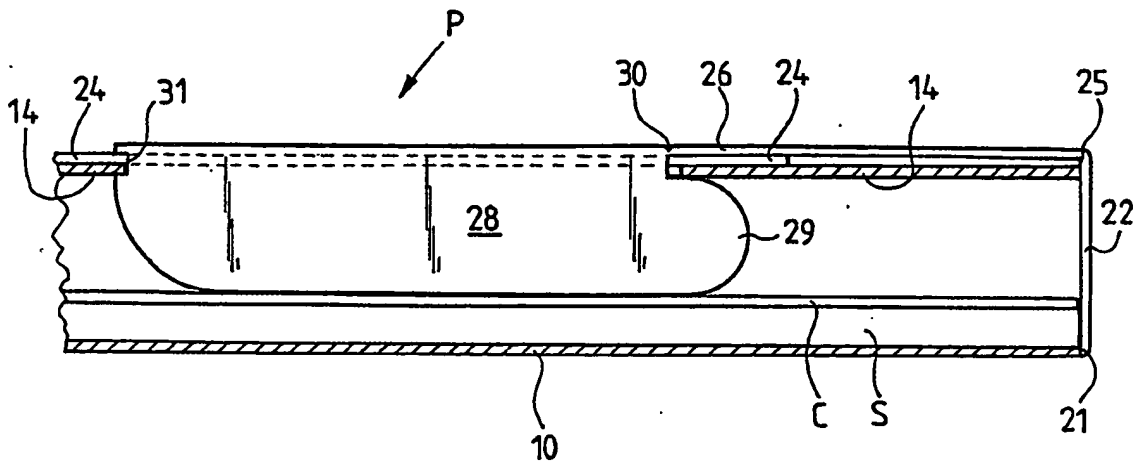


FIG. 4

"Container"

5 This invention relates to a container especially  
for circuit cards.

In known containers of this kind a circuit card is  
disposed in a box or carton formed from a blank, a  
padding being positioned both under and on top of the  
circuit card to support it and to protect it from  
10 damage.

The open components on the primary side of the  
circuit card, e.g. hybrids and other sensitive  
components, are covered by the padding. However, it is  
then quite possible that the circuit card may move or  
15 that the cover of the container may be pressed by an  
external force, whereby the components may e.g. be bent  
or be concealedly damaged in some other way.

An object of the present invention is to provide a  
container in which the above-mentioned disadvantages are  
20 reduced or eliminated and which is simple in its  
structure and manner of use.

According to the invention there is provided a  
container especially for packing a circuit card, the  
container comprising a blank of foldable sheet material,  
25 said blank comprising a bottom panel, side wall panels,  
front and back wall panels and a cover; wherein said  
side wall panels carry flap members arranged to operate  
as support members, said flap members being provided  
with slots; said cover comprising a pair of cover panels  
30 which are hinged to said front and back wall panels  
respectively, overlap upon folding inwardly and rest on  
said support members; the outer cover panel of said  
overlapping pair of cover panels carrying locking tabs  
arranged to be inserted into said slots provided in said  
35 flap members; and said locking tabs being arranged to  
operate as retaining members to keep a circuit card in  
place in the container.

The basic idea of the container according to the invention is that the same structure ensures that the container holds its shape, can be closed firmly and that an article to be packed therein is not damaged.

5 Firstly, the flap members on the side wall panels, when folded inside the container, support the cover panels resting on them, which prevents possible sagging of the cover. Secondly, the locking tabs on the outer cover panel, when inserted in the container through the slots  
10 in the flap members of the side wall panels, prevent sideways movement of the side wall panels. Finally, the locking tabs also close and lock the container, in addition to which they hold an article therein in place as they press against it, to stop the article from  
15 moving and being damaged.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, wherein:-

Fig. 1 is a plan view of a blank of sheet material  
20 for making a container according to the invention;

Fig. 2 is a perspective view of an almost erected container;

Fig. 3 is a cross-sectional view of a locking tab positioned in the container; and

25 Fig. 4 is a side view of the locking tab.

The container P depicted in Figs. 1 and 2 is made from a blank A of foldable sheet material, which comprises a rectangular bottom panel 10, to the first two opposite sides whereof side wall panels 12 are  
30 hingedly connected, which can be folded upwardly along fold lines 11. Flap members 14 that can be folded along fold lines 13 to be parallel to the bottom panel are hinged to the side wall panels. Substantially midway of the length of the fold lines 13 are slots 15, colinear  
35 with the fold lines, the purpose of which slots is explained below. In addition, at both ends of both side wall panels 12 there are tabs 18 that can be folded

inwardly into corner forming positions along fold lines 17. A front wall panel 20 and back wall panel 22, which can be folded upwardly along fold lines 19 and 21, are located on the second two opposite sides of the bottom panel. To the front wall panel and the back wall panel are hinged cover panels 24 and 26 which can be folded along fold lines 23 and 25 such that they overlap, the cover panels resting on the above-mentioned flap members 14 when the container is closed, whereby the flap members support the cover panels. The inner cover panel 24 has notches 24', the length of the notches being equal to the length of the slots 15 in the flap members 14, and the notches being arranged to coincide with the said slots 15 when the container is closed. Thus, when the container is closed, locking tabs 28, which are parallel to each other, hinged to the outer cover panel 26 and downwardly foldable along fold lines 27 at both side edges of the cover panel, can be inserted into the above-mentioned slots 15 by way of the notches 24', the locking tabs thereby closing and locking the container. To ensure the locking, at those ends of the locking tabs 28 that face the back panel 22, are tongues 29 which catch under the ends of the slots 15 when the locking tabs 28 are inserted into the slots. Advantageously, a fold line 30 crosses the cover panel 26 level with the tongues 29, whereby the front part of the cover panel can be folded upwardly upon closing and opening the container, so that the tongues can be more easily inserted into and withdrawn from the slots 15. At the fold lines 27, at those ends of the locking tabs 28 that face away from the back panel 22, are notches 31 whose width substantially corresponds to the combined thickness of the flap member 14 and the inner cover panel 24, the notches being capable of catching the ends of the slots 15 in the manner of a snap fastener. To facilitate opening the container, a cut-out 32 for a finger is advantageously provided at the front edge of

the outer cover panel 26.

The above-described container is used for packing a circuit card in the following manner. The inner dimensions of the container, above all its width, are  
5 selected such that they correspond to the outer dimensions of the circuit card. A circuit card has a free band of a certain width at its outer edge, the locking tabs on two sides of the container being intended to be positioned on the said band at the outer  
10 edge of the circuit card, on two sides thereof.

The cross-sectional view of Fig. 3 shows how the circuit card C is disposed in the container P. A padding S is advantageously positioned to cover the bottom of the container, i.e. on the bottom panel 10 of  
15 the blank of sheet material, the circuit card C being disposed on the padding. When the cover of the container is closed, the locking tabs 28 in the outer cover panel 26 are inserted through the slots 15 in the flap members 14 to be positioned against the two  
20 opposite bands at the outer edge of the circuit card. The depth of the locking tabs and the thickness of the padding are selected such that the circuit card stays firmly in place between the locking tabs and the padding.

25 The side view of Fig. 4 shows the position of one of the locking tabs 28 in the closed container. The tongue 29 at one end of the locking tab 28 is inserted into the slot 15 to extend under the cover panel 24 and the flap member 14, which overlap, and, correspondingly,  
30 the notch 31 at the other end of the locking tab catches with the cover panel 26 and the flap member. Further, the lower edge of the locking tab is positioned against the circuit card C, which is supported from the other side by the padding S.

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## Claims

1. A container especially for packing a circuit card, the container comprising a blank of foldable sheet material, said blank comprising a bottom panel, side wall panels, front and back wall panels and a cover; wherein said side wall panels carry flap members arranged to operate as support members, said flap members being provided with slots; said cover comprising a pair of cover panels which are hinged to said front and back wall panels respectively, overlap upon folding inwardly and rest on said support members; the outer cover panel of said overlapping pair of cover panels carrying locking tabs arranged to be inserted into said slots provided in said flap members; and said locking tabs being arranged to operate as retaining members to keep a circuit card in place in the container.
2. A container according to claim 1, wherein said flap members are parallel to said side wall panels in the flat blank and are of substantially the same length as said side wall panels, said flap members being hinged to said side wall panels along fold lines, and said slots extending along said fold lines substantially midway of the length thereof.
3. A container according to claim 1 or 2, wherein the inner one of the said cover panels is hinged to said front wall panel along a fold line and is provided with notches which are arranged to be aligned with said slots when said cover panel is positioned on said flap members.
4. A container according to claim 3, wherein said locking tabs of said outer cover panel, which is hinged to said back wall panel along a fold line, are connected to said cover panel along fold lines at the side edges of said cover panel, whereby said locking tabs can be



folded and inserted into said slots at said notches in said inner cover panel in such a manner that they extend to a certain distance inside the container.

5     5.    A container according to any one of the preceding  
claims, wherein said locking tabs have tongues  
projecting towards said back wall panel, said tongues  
being arranged in such a manner that when the container  
is closed, they catch under corresponding ones of said  
10   flap members.

6.    A container according to claim 5, wherein at ends  
opposite to said tongues, said locking tabs have notches  
opening towards said front wall panel, said notches  
15   being arranged in such a manner that when said container  
is closed, they receive edge portions of corresponding  
ones of said flap members and said inner cover panel in  
the manner of a snap fastener.

20   7.    A container according to any one of the preceding  
claims, wherein said locking tabs extend to a certain  
distance inside the package in such a manner that, in  
use, they press against opposite outer edges of a  
circuit card disposed in the container, whereby to hold  
25   the circuit card firmly in place in the container.

8.    A container for a circuit card, substantially as  
hereinbefore described with reference to the  
accompanying drawings.

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

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Applica number

GB 9302157.4

**Relevant Technical fields**

(i) UK CI (Edition K ) B8P (PE2A, PE5, PK3)

(ii) Int CI (Edition 5 ) B65D 5/50

**Databases (see over)**

(i) UK Patent Office

(ii)

**Search Examiner**

MIKE HENDERSON

**Date of Search**

10 MARCH 1993

Documents considered relevant following a search in respect of claims 1 TO 8

| Category<br>(see over) | Identity of document and relevant passages | Relevant to<br>claim(s) |
|------------------------|--|-------------------------|
|                        | NONE                                       |                         |

| Category | Identity of document and relevant passages | Relevant to claim(s) |
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